

CLAIMS

1. A mixed liquid separating apparatus for separating a particular substance from a mixed liquid containing at least two kinds of substances of which follow-rotating property is different, comprising:

a cylindrical outer member having an inducing port for inducing the mixed liquid at one end thereof, and an expelling port for expelling the separated particular substance at other end thereof;

a rod-shaped inner member disposed coaxially with said outer member to be relatively rotatable thereto;

a driving means for relatively rotating said outer member and said inner member; and

at least one of an inner peripheral surface of said outer member and an outer peripheral surface of said inner member having a spiral guiding wall for guiding the particular substance from the one end to the other end, by the relative rotation between said outer member and said inner member,

wherein the particular substance is separated during feeding to the other end along the guiding surface by the relative rotation between said outer member and said inner member.

2. A mixed liquid separating apparatus according to claim 1, wherein said outer member and said inner member has quality to follow-rotated strongly to the particular substance.

3. A mixed liquid separating apparatus according to claim 1 or 2, wherein the inner peripheral surface of said outer member has a cylindrical shape, and said inner member has the spiral guiding

surface on the outer peripheral surface thereof.

4. A mixed liquid separating apparatus according to one of claims 1 to 3, wherein the outer peripheral surface of said inner member is constructed by a male screw.
5. A mixed liquid separating apparatus according to one of claims 1 to 4, wherein said driving means holds said outer member to be stationary, and rotates said inner member.
6. A mixed liquid separating apparatus according to claim 1, wherein said outer member further includes a discharging means having a particular substance receiving portion and a particular substance discharging portion, the particular substance receiving portion being formed at other end provided with the expelling port for receiving the particular substance expelled from the expelling port, the particular substance discharging portion being formed at the particular substance receiving portion for discharging the particular substance accumulated therein.
7. A mixed liquid separating apparatus according to claim 6, wherein the particular substance discharging portion is a discharging port opened in the gravity acting direction.
8. A mixed liquid separating apparatus according to claim 6, wherein said discharging means further including a transferring means for transferring the particular substance accumulated in the particular substance receiving portion to the discharging port.
9. A mixed liquid separating apparatus according to claim 8,

wherein said transferring means is a plate fixed to said inner member, the plate rotating relative to the particular substance receiving portion by the relative rotation between said outer member and said inner member to push and gather the particular substance accumulated to the particular substance receiving portion to the particular substance discharging portion.

10. A mixed liquid separating apparatus according to claim 1 or 2, wherein the mixed liquid contains a liquid of low viscosity, and a liquid of high viscosity corresponding to the particular substance.

11. A mixed liquid separating apparatus according to claim 10, wherein the low viscosity liquid is a coolant, and the high viscosity liquid is a flown-up oil flown up on the coolant.

12. A mixed liquid separating apparatus according to claim 1 or 2, wherein the mixed liquid is a sludge containing the metal swarf corresponding to the particular substance.